Space Weather Forecast

Issued on Thursday, 25 August 2022 at 00:48 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Multiple sunspots on the visible disc, but currently all quiet.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar Activity has been Very Low, with no significant flares observed. There are now six sunspot regions on the visible disc, with two moderately sized, but magnetically simple, regions evident in the north and south of the right-hand side of the disc. The northern one has matured and is not showing any signs of flaring. The southern one has developed rapidly over the past 24 hours and is expanding, but currently is not twisted and therefore no significant flares have been observed. No Earth-directed CMEs (Coronal Mass Ejections) were observed.

Solar Wind / Geomagnetic Activity: The solar wind followed a broad declining trend over the last 24 hours, reducing erratically from 450 to around 400km/s. The magnetic field strength was generally weak, with only small fluctuations from the important the north-south component. Resulting Geomagnetic activity was Quiet (Kp0-2).

Energetic Particles / Solar Radiation: The flux of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to remain Very Low to Low through this period, with only a slight chance (15%) of Moderate-class flares should either of the large sunspots flare.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in this forecast. Solar winds are expected to remain at background levels with geomagnetic activity also remaining largely Quiet (Kp0-2). A slight enhancement is possible at the end of day 2 (26th) and into day 3 (27th) when the solar wind may pick up again, with perhaps isolated Unsettled or Active intervals (Kp3-4).

Energetic Particles / Solar Radiation: The flux of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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